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# The role of trait emotional intelligence in academic performance and deviant behavior at school

K.V. Petrides<sup>a,\*</sup>, Norah Frederickson<sup>b</sup>, Adrian Furnham<sup>b</sup>

<sup>a</sup>*Institute of Education, University of London, 25 Woburn Square, London WC1H 0AA, UK*

<sup>b</sup>*University College London, UK*

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## Abstract

This paper examines the role of trait emotional intelligence ('trait EI') in academic performance and in deviant behavior at school on a sample of 650 pupils in British secondary education (mean age  $\approx 16.5$  years). Trait EI moderated the relationship between cognitive ability and academic performance. In addition, pupils with high trait EI scores were less likely to have had unauthorized absences and less likely to have been excluded from school. Most trait EI effects persisted even after controlling for personality variance. It is concluded that the constellation of emotion-related self-perceived abilities and dispositions that the construct of trait EI encompasses is implicated in academic performance and deviant behavior, with effects that are particularly relevant to vulnerable or disadvantaged adolescents.

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**Keywords:** Emotional intelligence; Emotional self-efficacy; Scholastic achievement; Truancy; Personality; IQ

## 1. Introduction

Emotional intelligence (EI) has recently attracted a lot of interest in the academic literature (Charbonneau & Nicol, 2002; Ciarrochi, Deane, & Anderson, 2002; Mayer, Salovey, & Caruso, 2000; Palmer, Donaldson, & Stough, 2002; Petrides & Furnham, 2003; Roberts, Zeidner, & Matthews, 2001; Saklofske, Austin, & Minski, 2003). The distal roots of EI can be traced back to the concept of 'social intelligence,' coined by E.L. Thorndike (1920) to refer to the ability to understand and manage people and to act wisely in human relations. Its proximal roots lie in the work of Gardner (1983) and, more specifically, in his concepts of intrapersonal and interpersonal

\* Corresponding author. Tel.: +44-207-612-6288; fax: +44-207-612-6304.

E-mail address: [k.petrides@ioe.ac.uk](mailto:k.petrides@ioe.ac.uk) (K.V. Petrides).

intelligence. EI as a term has been present in the literature for a relatively long time (Greenspan, 1989; Leuner, 1966), although it was not until 1990 that the construct was introduced in its present form (Salovey & Mayer, 1990). EI was propelled into prominence by Goleman's (1995) best-selling book and a subsequent lead article in TIME magazine (Gibbs, 1995). Thereafter, articles on EI began to appear with increasing frequency across a wide range of academic and popular outlets. Nevertheless, the quantity of empirical work carried out on the construct, including the development of appropriate measures, seems to bear an inverse relationship to the interest it has attracted in the scientific and popular literature.

### 1.1. *Trait EI versus ability EI*

Petrides and Furnham (2000a, 2000b, 2001) proposed a clear conceptual distinction between two types of EI, i.e., trait EI and ability EI. *Trait EI* (or 'emotional self-efficacy') refers to a constellation of *behavioral dispositions* and *self-perceptions* concerning one's ability to recognize, process, and utilize emotion-laden information. It encompasses various dispositions from the personality domain, such as empathy, impulsivity, and assertiveness as well as elements of social intelligence (Thorndike, 1920) and personal intelligence (Gardner, 1983), the latter two in the form of self-perceived abilities. *Ability EI* (or 'cognitive-emotional ability') refers to one's *actual* ability to recognize, process, and utilize emotion-laden information. Trait EI is measured through self-report questionnaires and pertains to the realm of personality. Ability EI requires the use of maximum-performance tests with correct and incorrect responses and pertains primarily to the realm of cognitive ability. This is an important distinction inasmuch as it bears directly on the operationalization of the construct and thence on the theories and hypotheses that are formulated about it.

The measurement of ability EI remains a challenging task given the difficulty of devising relevant items that can be objectively scored as correct or incorrect (Petrides & Furnham, 2001; Roberts et al., 2001). In contrast, the measurement of trait EI is much more straightforward and there already exist several widely used instruments for its assessment (e.g., Bar-On, 1997; Schutte et al., 1998). The theoretical underpinnings of trait EI, along with an operational definition of the construct and its precise location in established trait hierarchies are presented in Petrides and Furnham (2001).

### 1.2. *The present study*

The aim of this paper is to evaluate a series of hypotheses concerning the potential role of trait EI in academic performance and in deviant behavior at school. A finding that has been viewed with some concern is that EI, measured through self-report, seems to be uncorrelated to cognitive ability and academic performance (e.g., Newsome, Day, & Catano, 2000; van der Zee, Schakel, & Thijs, 2002). Viewed within the context of the distinction between trait and ability EI, however, this finding is to be expected. Trait EI, which is assessed through self-report instruments, is a personality trait rather than a cognitive ability and as such it should not be expected to show strong associations either with psychometric intelligence or with proxies thereof (see Eysenck, 1994; McCrae, 1994; Zeidner, 1995). Indeed, all the available empirical evidence clearly suggests that trait EI is virtually orthogonal to cognitive ability (Derksen, Kramer, & Katzko, 2002; Newsome et al., 2000; Saklofske et al., 2003).

Any investigation of the potential effects of trait EI on academic performance must be pursued in a specific context, for instance, across clearly differentiated groups of individuals. As an example, it is worth noting a study by Reiff, Hatzes, Bramel, and Gibbon (2001), showing that students with learning disabilities had lower trait EI scores than their non-disabled counterparts. While an individual's emotion-related self-perceptions are unlikely to be directly associated with better or poorer scholastic achievement, it is quite possible that they might interact with variables that are (e.g., cognitive ability).

In general, we may expect any effects that trait EI might have on scholastic achievement to be more pronounced in vulnerable groups (e.g., low ability, maladjusted, learning-disabled). This is because vulnerable or disadvantaged individuals are more likely to experience stress and emotional difficulties during the course of their studies and, consequently, they are more likely to benefit from an adaptive disposition to deal with such difficulties. The present study examines this and other issues in a comprehensive multivariate investigation based on a large sample, several different academic subjects, and multiple criteria of both academic performance and deviant behavior in school.

More specifically, we will investigate the relationship between trait EI and scholastic achievement with data from national examinations in various academic subjects. Furthermore, we will look at whether trait EI is associated with deviant behaviors, such as truancy and unruliness in secondary schools. Last, we will examine the incremental validity of trait EI vis-à-vis the three Eysenckian personality dimensions (Barrett, Petrides, Eysenck, & Eysenck, 1998; Eysenck, 1947; Eysenck, 1997; for a detailed discussion of issues concerning incremental validity see Petrides & Furnham, 2003).

Given that trait EI may be especially relevant to vulnerable groups, e.g. learning disabled or low IQ individuals, it might be expected to act as a moderator of the effects of cognitive ability on academic performance. In particular, high trait EI is likely to be associated with better performance in pupils with low cognitive ability. It is unclear, however, whether such an effect might vary across different subjects (e.g., mathematics and English), as is the case with psychometric intelligence (Jensen, 1998).

Low trait EI may be a key ingredient in a variety of deviant behaviors, many of which have been repeatedly linked to emotional deficits (Cohen & Strayer, 1996; Eisenberg, 2000; Roberts & Strayer, 1996). Moreover, there is evidence that negative self-perceptions are associated with both truancy and classroom disruption at secondary school level (Fergusson, Lynskey, & Horwood, 1995; Williamson & Cullingford, 1998). A low level of emotional self-efficacy, in combination with increased impulsivity and poor social skills, are likely to be implicated in various forms of antisocial behavior. We hypothesized that trait EI will be negatively related both to exclusions (suspensions due to serious breaches of school discipline) and to unauthorized absences (truancy) from school.

## 2. Method

### 2.1. Participants

Questionnaire data were collected from 901 pupils. Complete data were available for about 650 of them, although the actual sample size varies depending on the variables involved in the various

analyses. Approximately 52% of participants were males and 48% females. All participants were Year 11 pupils in British secondary education (mean age of approximately 16.5 years).

## 2.2. Measures

### 2.2.1. Trait Emotional Intelligence Questionnaire (TEIQue)<sup>1</sup>

Trait EI was assessed with a 144-item questionnaire based on a five-point Likert scale. Most items were drawn from existing measures, including the Affective Communication Test (Friedman, Prince, Riggio, & DiPaolo, 1980), the measure of Emotional Empathy (Mehrabian & Epstein, 1972), the Toronto Alexythymia Scale (Bagby, Parker, & Taylor, 1994), the Trait Meta-Mood Scale (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), Schutte et al.'s (1998) emotional intelligence questionnaire, and the EQ-i (Bar-On, 1997). Items were selected or created such that they cover the sampling domain of the construct comprehensively (see Petrides & Furnham, 2001), with the exception of its 'general mood/well-being' component. This component was omitted in this case as it has been suggested that it may singly account for the associations between trait EI and various external criteria (Mayer et al., 2000).

The inventory was initially piloted on approximately 20 pupils to ensure comprehensibility and to estimate the amount of time required to complete it. In line with other studies that have employed trait EI measures with adolescents (Ciarrochi, Chan, & Bajgar, 2001), the pilot study showed that the materials were suitable for use with this age group. Detailed information about the TEIQue subscales is presented in Table 1. The internal consistencies of the TEIQue subscales were generally high, with the exceptions of 'social competence' ( $\alpha = 0.59$ ) and 'emotion regulation' ( $\alpha = 0.68$ ). The alphas for these two scales, especially the former one, indicate some degree of heterogeneity in their items. The internal consistency of the overall scale scores, on which all analyses were based, was 0.76. It should be noted that although tests or scales are commonly

Table 1  
Descriptives for the version of the TEIQue used in this study

Scale	Number of items <sup>a</sup>	Alpha	Characteristic item
Adaptability	12	0.71	It's easy for me to adjust my life according to the circumstances.
Assertiveness	13(2)	0.76	I often agree to do something only because I don't want to disappoint someone. (R)
Emotion Perception	13(2)	0.75	I can usually recognize an emotion from the moment it starts to develop.
Emotion Expression	11(3)	0.75	Others tell me that I rarely speak about how I feel.
Emotion Regulation	14(1)	0.68	When I get upset, I can calm myself down quickly.
Empathy	15	0.78	I'm good at understanding the way other people feel. (R)
Impulsiveness (low)	16	0.82	I often speak before thinking things out. (R)
Relationship Skills	15	0.77	It's easy for me to make friends.
Social Competence	13(2)	0.59	Sometimes I just come up with things that embarrass people I'm with. (R)
Stress Management	11(1)	0.76	I can handle difficult situations with calmness.

<sup>a</sup> Parentheses indicate the number of items deleted from each scale due to negative item-total correlations.

<sup>1</sup> The version of the Trait Emotional Intelligence Questionnaire (TEIQue) used in this study as well as a revised long version and a short 30-item version are all available free of charge from the first author for research purposes only.

described as ‘reliable’ or ‘unreliable,’ reliability is a property of scores based on a particular sample, measured on a particular occasion (see [Thompson, 1994](#)). Thus, when we refer to internal consistency indices, it is important to remember that these concern scale scores as were obtained on a particular measurement occasion and sample.

#### 2.2.2. *Eysenck Personality Questionnaire—Revised (EPQ-R; Eysenck, Eysenck, & Barrett, 1985)*

This is a benchmark personality questionnaire representing the best operationalization of the Eysenckian P-E-N system. It comprises 48 items that are responded to on a dichotomous scale (True/False). On this sample, the internal reliabilities for Psychoticism, Extraversion, and Neuroticism were 0.65, 0.85, and 0.78, respectively. As has been found in other studies (see especially [Caruso, Witkiewitz, Belcourt-Dittloff, & Gottlieb, 2001](#)), the internal consistency of the Psychoticism scale was lower than ideal. As [Eysenck et al. \(1985\)](#) note, the breadth of the sampling domain of the Psychoticism dimension is likely to affect the internal consistency of the scores. While this issue merits additional research, we believe that the reliability of EPQ-R scores, particularly those on Psychoticism, is lower than might be due to the use of a dichotomous response scale and the concomitant reduction in score variability.

#### 2.2.3. *Verbal Reasoning Test (VRT)*

This tailor-made test measures primarily crystallized intelligence and is used by the educational authority that supported this study (see Procedure). The reliability of scores on this test (KR20) is usually in the order of about 0.97 (National Foundation for Educational Research, personal communication), although this value could not be corroborated in the present case because item-level scores were not available. The test is administered thrice to each pupil and the score that the educational authority uses, and was made available to us, represents the average of the best two performances. Henceforth, we refer to this variable as ‘IQ’.

The following criteria were used in this study:

#### 2.2.4. *Key Stage 3 Assessment (KS3) results*

In the UK, pupils are statutorily assessed at the end of each of the four stages of the National Curriculum, which is followed by all publicly funded schools. Pupils will normally be about 14 years old when national testing occurs. At this stage, attainment in the three core National Curriculum subjects of English, maths, and science is assessed.

#### 2.2.5. *General Certificate of Secondary Education (GCSE) A–C marks*

GCSEs are the principal means of assessing pupil attainment at the end of compulsory secondary education at 16 years. Assessment of GCSEs is usually by external examination and coursework, with the balance towards the former. Assessed subjects include English, maths, science, religion, arts, music, design and technology, etc. Some of these are compulsory, whereas others are optional. GCSEs are graded from A\* to G. Attainment at grades A\* to C is at level 2 of the UK national qualifications framework, while attainment at grades D to G is at level 1. Progression to further education and training beyond 16 years is closely linked to level 2 attainment, with entry requirements often stipulating a minimum number of GCSEs at grade C or above.

#### 2.2.6. *Authorized absences*

Information on the number of authorized absences during the school year was available for 363 pupils.

#### 2.2.7. *Unauthorized absences*

Information on unauthorized absences (truancy) for the same period was available for 391 pupils. Of those, 48 had one or more unauthorized absences.

#### 2.2.8. *Exclusions*

Information on the number of exclusions was available for 533 pupils. Of those, 15 had been excluded from school for 1 or more days.

### 2.3. *Procedure*

The study was conducted under the auspices of the Buckinghamshire County Council Educational Authority (UK). A number of secondary schools in the county were contacted, of which seven participated across all phases of the study. The questionnaire battery was administered by teachers in class according to a detailed protocol and additional data were retrieved from school databases.

## 3. Results

### 3.1. *Structural equation model*

In order to provide an overall picture of this relatively large and complex data set, a structural equation model was set up in LISREL 8.3 (Jöreskog & Sörbom, 1993), whereby IQ and trait EI were modelled as exogenous variables and KS3 and GCSE as endogenous variables.

Fig. 1 presents the tested statistical model, along with the standardized parameter estimates. The model represented a good fit to the data:  $\chi^2_{(13)} = 61.73$ , RMSEA = 0.07, GFI = 0.98, CFI = 0.99, SRMR = 0.02. We note in passing the negative and positive (non-significant) paths from trait EI to KS3 and GCSE, respectively, and draw attention to the extraordinarily strong influence of IQ on exam performance. Thus, the direct effect of IQ on KS3 was +0.94, whereas its effect on GCSE, mediated through KS3, was +0.87. In sum, IQ accounted for about 84% of the variation in KS3 scores and 76% in GCSE scores. It should be noted that the effect of IQ on GCSE is *indirect*, i.e. it occurs by virtue of the relationship between IQ and KS3 initially and the latter variable's strong association with GCSE subsequently. Given the strength of the total IQ effect, it is clear that the scope for additional systematic effects on exam performance is quite limited.

### 3.2. *Moderated multiple regressions*

In order to examine the possibility of trait EI effects (direct or moderating), a series of moderated multiple regressions (Aiken & West, 1991; Darlington, 1990) was conducted with IQ, trait

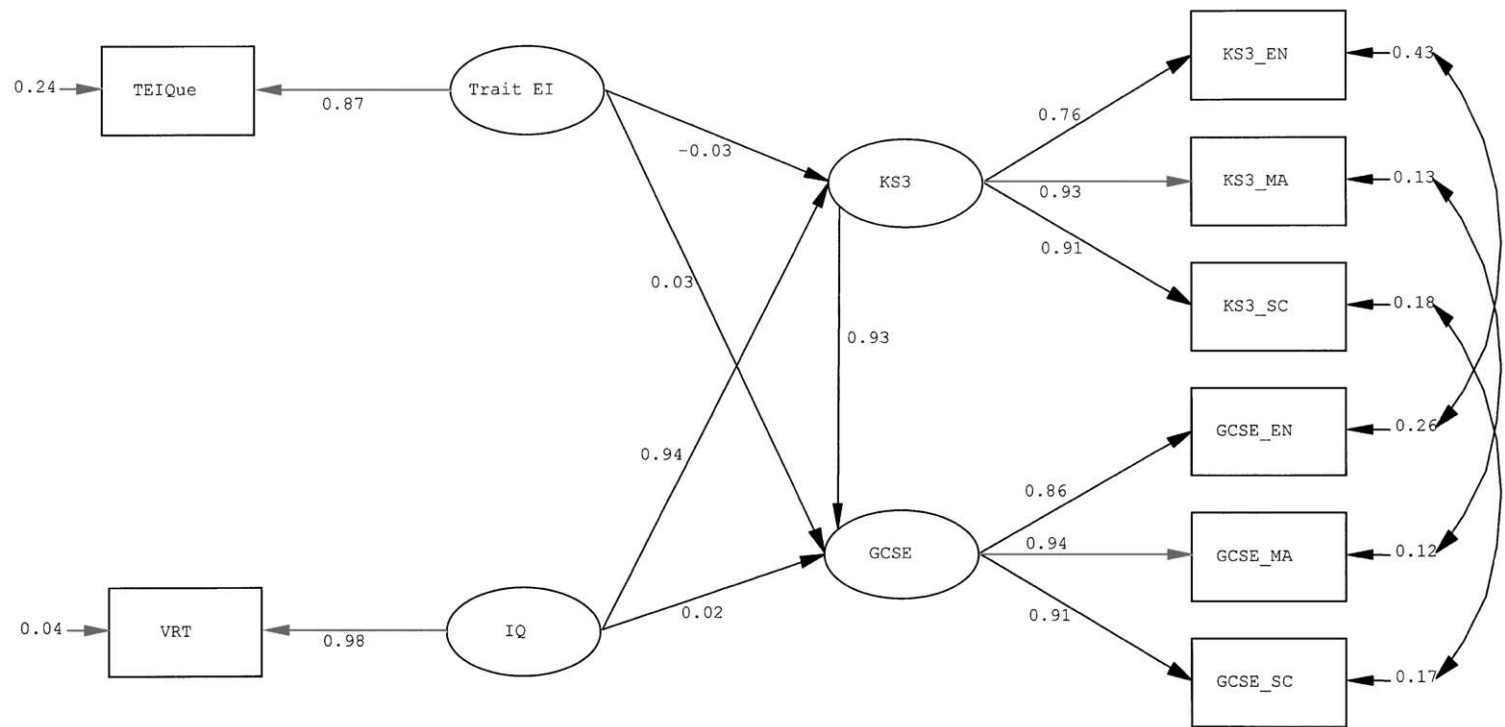


Fig. 1. Structural equation model with standardized maximum likelihood parameter estimates. EN = English, MA = Maths, SC = Science, KS3 = Key Stage 3 assessment, GCSE = General Certificate of Secondary Education assessment.



EI, and their interaction as the three regressors. Three composites were created for English, maths, and science, respectively, by summing up the corresponding scores across the KS3 and GCSE levels. These composites, along with overall GCSE performance, operationalized as the number of A–C grades achieved, served as the dependent variables in the regression equations. Analyses were conducted both for raw as well as for partial trait EI scores. In order to carry out the latter set of regressions, all relevant variables were residualized on the three Eysenckian dimensions prior to being entered into the equations. All regressions were performed hierarchically by entering IQ first, followed by trait EI, followed by their interaction. Simple slopes analyses were performed through special macros developed by O'Connor (1998). Whenever interactions were present, the correct standardized betas for the overall and simple slopes regressions were derived through procedures outlined in Friedrich (1982) and Aiken and West (1991). Results are reported for the final regression models only.

### 3.3. Trait EI—raw scores

There were no significant trait EI effects (direct or moderating) in the regression with the maths composite. The model with IQ as the sole predictor ( $\beta = 0.867$ ,  $t = 44.54$ ,  $P < 0.01$ ) was significant ( $F_{(1, 656)} = 1983.52$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.75$ ). The same pattern of results was obtained in the regression with the science composite. The model with IQ as the sole predictor ( $\beta = 0.829$ ,  $t = 37.95$ ,  $P < 0.01$ ) was significant ( $F_{(1, 653)} = 1440.12$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.69$ ).

The results for the English composite and overall GCSE performance revealed significant interactions between IQ and trait EI.<sup>2</sup> For the former, the overall regression was significant ( $F_{(3, 656)} = 421.56$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.66$ ), with the standardized coefficient for the IQ  $\times$  trait EI interaction being negative ( $\beta = -0.055$ ,  $t = 2.47$ ,  $P < 0.05$ ; see Fig. 2a for the simple slopes data plot). The point of intersection of the simple slopes occurred at IQ = 128.2, i.e., about one standard

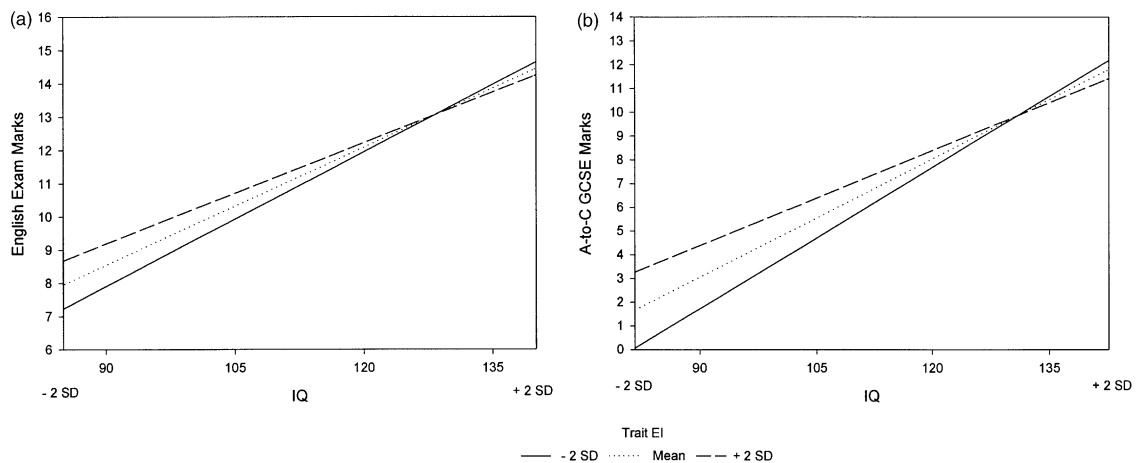


Fig. 2. Simple slopes data plots of the bilinear trait EI  $\times$  IQ interaction for English (a) and for A–C GCSE marks (b).

<sup>2</sup> Two outliers (standardized residuals  $> 3.3$ ; see Tabachnick & Fidell, 2001) were removed from all regressions involving the English composite and one from those involving overall GCSE performance. The interaction terms were statistically significant both prior and subsequent to the removal of the outliers.



deviation above the sample mean. At this point, trait EI scores are irrelevant to performance. Below this point, higher trait EI scores are associated with higher marks. Above this point, the trend reverses.

A very similar pattern of results was obtained for overall GCSE performance, with the regression equation being significant ( $F_{(3, 669)} = 257.89$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.53$ ) and the IQ  $\times$  trait EI standardized coefficient reliably negative ( $\beta = -0.066$ ,  $t = 2.65$ ,  $P < 0.01$ ; see Fig. 2b for the simple slopes data plot). The point of intersection occurred at IQ = 130.9.

### 3.4. Trait EI—partial scores

The results based on the analyses of partial scores parallel those presented above. Thus, there were no trait EI effects on maths or science, but there were significant interactions for English and overall GCSE performance. The regression with the English composite was significant ( $F_{(3, 642)} = 412.77$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.66$ ) and the standardized coefficient for the interaction was reliably negative ( $\beta = -0.051$ ,  $t = 2.65$ ,  $P < 0.05$ ). The GCSE regression was also significant ( $F_{(3, 654)} = 248.53$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.53$ ), with a reliably negative standardized coefficient for the interaction term ( $\beta = -0.066$ ,  $t = 2.42$ ,  $P < 0.05$ ).

### 3.5. 'Extreme groups' ANOVAs

In order to examine more closely participants with high and low IQ and trait EI scores, four groups comprising 'extreme-scoring' pupils, i.e., those who fell within the upper and lower IQ and trait EI quartiles, were created: group 1 (low IQ/low trait EI,  $n = 53$ ), group 2 (high IQ/low trait EI,  $n = 36$ ), group 3 (low IQ/high trait EI,  $n = 28$ ), group 4 (high IQ/high trait EI,  $n = 52$ ). This analysis is intended to provide information about groups of individuals at the extremes of the IQ and trait EI distributions and its results may *not* be extrapolated over the entire continuum of IQ and trait EI scores. The associations of IQ and trait EI with academic performance across the entire continuum of scores are given in the moderated multiple regressions section above. The results of the four one-way ANOVAs, followed by Sidak post-hoc tests, are presented in Table 2.

As can be seen in Table 2, there were extensive performance differences in all three scholastic subjects and in overall GCSE performance between the two high and two low IQ groups. In addition, there were considerable differences between high and low trait EI pupils within the low IQ group, with the former achieving significantly higher marks in English and significantly more A–C GCSE marks. In contrast, no significant differences were observed between the high and low trait EI pupils within the high IQ group, although it is worth noting that in this case the latter narrowly outperformed the former in all four measures of scholastic achievement. The results from the analyses with partial trait EI were very similar and are not reported in detail (see Table 2).

### 3.6. Truancy and exclusions

A hierarchical regression was conducted for authorized and unauthorized absences, respectively. Trait EI was entered in the first step, followed by Extraversion, Neuroticism, and Psychoticism in the second. Trait EI was not a significant predictor in the regression of authorized absences ( $\beta = 0.028$ ,  $t < 1$ ). In contrast, it was a significant negative predictor ( $\beta = -0.439$ ,

Table 2

Comparisons of the four groups based on quartile splits of IQ and trait EI on the left and IQ and partial trait EI on the right

	Low IQ/Low trait EI (a)		High IQ/Low trait EI (b)		Low IQ/High trait EI (c)		High IQ/High trait EI (d)		<i>F</i>		Sidak tests
Maths	6.82 (0.24)	7.15 (0.24)	14.14 (0.28)	13.71 (0.33)	7.04 (0.33)	7.05 (0.38)	13.85 (0.24)	13.84 (0.23)	236.97 (0.81)	194.68 (0.79)	b > a, d > a, b > c, d > c
Science	7.35 (0.23)	7.61 (0.23)	13.70 (0.26)	13.32 (0.32)	7.72 (0.31)	7.71 (0.37)	13.36 (0.22)	13.26 (0.23)	198.03 (0.79)	146.24 (0.74)	b > a, d > a, b > c, d > c
English	7.93 (0.21)	8.11 (0.18)	13.41 (0.25)	13.19 (0.26)	9.32 (0.29)	9.30 (0.31)	13.31 (0.21)	13.49 (0.19)	157.76 (0.75)	178.39 (0.78)	b > a, c > a, d > a, b > c, d > c
A–C (GCSE)	2.15 (0.33)	2.05 (0.28)	9.81 (0.41)	9.54 (0.41)	3.79 (0.46)	3.73 (0.46)	9.71 (0.34)	9.51 (0.29)	120.14 (0.69)	147.49 (0.74)	b > a, c > a, d > a, b > c, d > c

All *F* values and post-hoc tests significant at  $P < 0.01$  except c > a in A–C (GCSE), which was significant at  $P < 0.05$ . Values in parentheses under the means are standard errors. Values in parentheses under the *F* ratios are effect sizes.

$t = 3.20$ ,  $P < 0.01$ ) in the regression of *unauthorized* absences ( $F_{(1, 43)} = 10.25$ ,  $P < 0.01$ ;  $R^2_{\text{adj}} = 0.17$ ) and remained so ( $\beta = -0.525$ ,  $t = 2.64$ ,  $P < 0.05$ ) even after the inclusion of the three Eysenckian dimensions in the equation ( $F_{(4, 38)} = 3.36$ ,  $P < 0.05$ ;  $R^2_{\text{adj}} = 0.18$ ). Note, however, that when a logistic regression was carried out on the data, including participants without any unauthorized absences, none of the predictors was significant in the equation.

There were only a few pupils with exclusions in the sample (15, of whom only 12 had completed the trait EI measure). We divided those pupils into high and low trait EI groups through mean splits on full and partial trait EI. In the former classification, 9 out of the 12 pupils with exclusions were in the low trait EI group. For these data,  $\chi^2_{(1)} = 3.05$ ,  $P < 0.05$ , one-tailed. In the classification based on partial trait EI, 10 out of 12 pupils with exclusions were in the low (partial) trait EI group. For these data,  $\chi^2_{(1)} = 5.73$ ,  $P < 0.05$ .

#### 4. Discussion

The influence of IQ on scholastic achievement is well documented (Jensen, 1993; Mackintosh, 1998; Neisser et al., 1996) and will not be discussed here, except to note that the markedly strong effects witnessed in this study are related to the breadth of the sample. Despite the limited scope for additional influences from other variables, trait EI was significantly related to scholastic achievement, with its effects having noteworthy implications for low IQ pupils.

##### 4.1. Academic performance

Trait EI was differentially associated with the educational subjects considered in this study. Thus, it had no considerable influence on maths or science performance, but it moderated the effect of IQ on English and overall GCSE performance. There are two distinct processes through which trait EI may bear on academic achievement. First, high trait EI may exert a psychologically stabilizing influence during the period leading up to the assessments. This process is likely to be

differentially relevant to high and low IQ pupils. Various types of anxiety, stress, and emotional deficits have been shown negatively to affect scholastic achievement, although the associations are not always direct, linear, or unidirectional (Boekaerts, 1993; Roeser & Eccles, 2000; Seipp, 1991; Stewart, Lam, Betson, Wong, & Wong, 1999).

It is not unlikely that for low IQ pupils, who are more likely to find it difficult to cope with the demands of their courses, aspects of the construct, such as positive self-perceptions, may facilitate improvements in academic performance. However, trait EI does not seem to have a similar effect for high IQ pupils (hence the interaction). It appears that such effects as trait EI might have on academic performance are likely to assume prominence when the demands of a situation tend to outweigh a pupil's intellectual resources. In contrast to their high IQ counterparts, low IQ pupils are more likely to be forced to draw on resources other than their cognitive ability in order to cope with the demands of their courses.

In the present study, there was a bilinear interaction between IQ and trait EI, whereby the effects of the latter on academic performance varied as a linear function of IQ scores. High trait EI was associated with better academic performance across a range of low IQ scores, but the relationship began to reverse at IQ scores of about +1 S.D. The univariate ANOVAs clearly showed that high trait EI was more important for low IQ pupils, as hypothesized. Thus, within the low IQ group, high trait EI participants had better English and overall GCSE marks, whereas within the high IQ group, the opposite was true, although the differences were not statistically significant in that case.<sup>3</sup> The latter finding is in line with the proposition that a degree of stress and anxiety may be conducive to scholastic achievement for able and well-adjusted individuals (Eysenck, 1996; Spielberger, 1966; Stankov, Boyle, & Cattell, 1995; Svanum & Zody, 2001).

The second process through which trait EI may influence scholastic attainment is by conferring a selective advantage for certain academic subjects that require consideration of affect-related issues (English literature, arts, design, etc.). In line with this proposition, the results of this study showed that trait EI was differentially implicated in academic performance across the various subjects we considered, with its effects being comparatively pronounced for English and overall GCSE performance and negligible for maths and science. Clearly, it is possible that the construct relates differently to different academic topics and future studies should consider such differences.

It is not easy categorically to determine the processes through which trait EI relates to scholastic performance. These processes could well be reciprocal, dynamic, and distally rooted in a manner that prevents investigations of this kind from fully elucidating them. Nevertheless, it is evident from this and other studies in the literature (e.g. Reiff et al., 2001) that the construct is implicated in academic performance, with effects that are especially relevant to vulnerable groups. It should also be noted at this point that in those cases where trait EI is found to be directly associated with academic performance, the global association could potentially be negative. This follows from the fact that the two strongest trait correlates of the construct, i.e. Extraversion and Neuroticism (Petrides & Furnham, 2001), tend to have negative global associations with academic performance (De Raad & Schouwenburg, 1996; Furnham & Medhurst, 1995).

Fig. 3 illustrates a process through which trait EI might be moderating the relationship between cognitive ability and academic performance. The figure concerns low IQ pupils exclusively, as

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<sup>3</sup> It is often difficult to demonstrate differences in scholastic performance within groups of high-performing individuals because the criteria, if not devised especially for such investigations, are likely to exhibit ceiling effects.

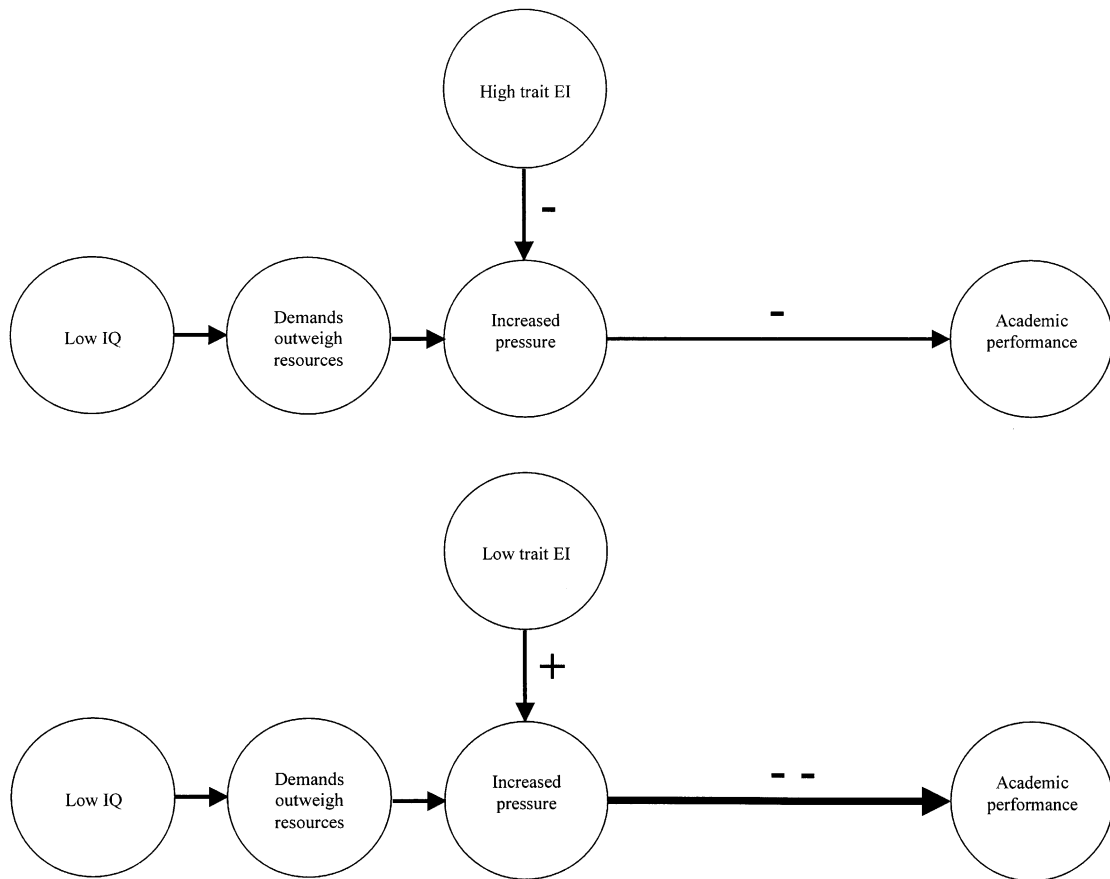


Fig. 3. The moderating role of trait EI in scholastic achievement. Low ability pupils find themselves in an intellectually demanding environment that overtaxes them cognitively and emotionally. Those high on trait EI are better able to deal with the concomitant stress and have wider social networks, which diminish the negative impact of pressure on academic performance, thereby resulting in improved grades. In contrast, those low on trait EI are unable to deal effectively with psychological pressure, which is compounded by their poor social and emotion-regulation skills, thereby resulting in poorer grades.

emotional self-efficacy (trait EI) does not seem to have a conspicuous influence on the performance of pupils with high IQ scores. In contrast, for pupils with low IQ scores, who are much more likely to find themselves under pressure due to the disparity between their abilities and the educational demands imposed on them, high trait EI is conducive to improved performance, perhaps because it enables them to cope more effectively with emotional stress and anxiety.

#### 4.2. Truancy and exclusions

Trait EI was negatively associated with unauthorized absences and pupils with low trait EI scores were significantly more likely to have been expelled from their school, as hypothesized. Again, it is difficult precisely to establish the processes whereby trait EI relates to social variables

of such complexity, but it should be noted that various kinds of emotional and low self-esteem deficits consistently come up as predictors or correlates of conduct-disordered behaviors (Cohen & Strayer, 1996; Eisenberg, 2000; Williamson & Cullingford, 1998). Individuals with good social skills, who actively engage in emotion appraisal and regulation, are less likely to experience and externalize distress through antisocial behaviors. Conversely, individuals with poor social and emotional skills are more likely to feel withdrawn and excluded, which increases their likelihood of behaving in anticonventional ways. In this case, however, it is especially important to underscore the need for replication because the results concerning truancy and exclusions are based on small sample sizes and dichotomization procedures that can be problematic (MacCallum, Zhang, Preacher, & Rucker, 2002). These findings are suggestive of potentially interesting, perhaps even important, effects, but they may not be construed as definitive empirical statements.

## 5. Concluding remarks

The present findings suggest that trait EI is relevant to scholastic achievement and deviant behavior at school, especially for disadvantaged and vulnerable adolescents. These results are in line with previous research on trait EI (Reiff et al., 2001), in particular, and with theories and findings highlighting the importance of cognate constructs during the critical period of adolescence, more generally (Cohen & Strayer, 1996; Eisenberg, 2000; Gottfredson, 2001). All this research converges to underscore the importance of self-perceived evaluations and emotional well-being during adolescence and beyond.

The relatively recent influx of empirical evidence supporting the validity and predictive utility of trait EI in a variety of contexts and circumstances must be evaluated in a broad perspective. In our view, the currently available empirical evidence shows clearly that neither of the two EI constructs (trait EI and ability EI) has effects that are anywhere near as strong or pervasive as some theoretical accounts would suggest. Furthermore, the vast majority of promising findings concern the former type of EI and even some of these could be considered marginal or moderate, at least in terms of their effect sizes. In light of the foregoing, we submit two propositions for consideration. First, the importance of research in this area is not to be judged according to the resultant effect sizes, but rather according to the extent to which it elucidates the nature of the construct. Judged by this yardstick, the research that has been conducted in the short amount of time EI has been under empirical investigation is important. For example, this research suggests that we must think about two rather than a single EI construct (trait EI and ability EI), the former of which is located at the lower levels of trait hierarchies and is meaningfully correlated with a large number of relatively diverse criteria, often incrementally over major trait dimensions, such as Neuroticism.

Our second proposition is that the usefulness of trait EI is to be judged primarily on the basis of what it *explains* and not on the basis of what it predicts. This proposition is especially implicative for studies of incremental validity, where trait EI might not be an incremental predictor in the presence of a number of different covariates, but may well be a meaningful explanatory variable on its own. Another implication of the same proposition is that research on trait EI is likely to benefit from an effort to present potential processes that may provide explanations for empirical results.

With respect to the well-being component of trait EI, which is salient in several measures, particularly the Bar-On EQ-i, the present study suggests that it is neither the sole nor the most important constituent element of the construct. In other words, the emotion-related self-perceptions and dispositions that trait EI encompasses extend well beyond emotional well-being. More generally, findings based on different trait EI measures tend to converge, even though there is considerable variation in their coverage of the sampling domain of the construct. This fact supports conceptualizations that view trait EI as a constellation of strongly interrelated self-perceptions and dispositions, where the omission of a few facets does not necessarily have a major impact on the empirical associations of the construct with other variables. Nevertheless, it would be useful at this stage to conduct a systematic psychometric investigation of salient trait EI measures in order to establish the extent to which they are empirically related.

What makes the present findings especially interesting is the nature of the criteria, which concerned behaviors of ‘real-world’ importance. Moreover, the assessment of these behaviors was not based on self-reports, which eliminated the ubiquitous problem of common method variance. From a practical perspective, it is important to show that trait EI has incremental validity over cognitive ability and established personality traits in predicting achievement and behavior. From a more general perspective, the present demonstration of incremental validity complements findings from other studies. For example, Saklofske et al. (2003) found significant incremental (over the Big Five) associations between trait EI and a series of criteria, including life satisfaction, loneliness, and depression. For additional evidence of incremental validity, along with a detailed consideration of relevant issues, see Petrides and Furnham (2003).

There is little doubt that increased precision in targeting potentially vulnerable individuals will be conducive to the success of many intervention schemes. Moreover, although the findings of this paper are restricted to the domains of scholastic achievement and antisocial conduct at school, it seems reasonable to ask whether trait EI might also be associated with educational and occupational aspirations, learning styles and attitudes, and early career preferences. Perhaps the inclusion of trait EI measures in assessment studies and intervention programs aimed at adolescent behavior might provide useful insights both for basic research and for social policy.

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